

AMENDMENTS TO THE CLAIMS

1. (Original) A method for selecting a random access channel (RACH) scrambling code from a plurality of scrambling codes by a (user equipment) UE in a CDMA (Code Division Multiple Access) mobile communication system including a UTRAN (UMTS (Universal Mobile Telecommunication System) Terrestrial Radio Access Network), comprising the steps of:

transmitting information for a plurality of scrambling codes having serial numbers associated with random access channels(RACHs) from the UTRAN to the UEs; and

selecting a scrambling code from a plurality of scrambling codes by a UE (User Equipment), wherein each UE selects the scrambling code from the plurality of scrambling codes using a unique identifier specified by each of the plurality of UEs.

2. (Original) The method as claimed in claim 1, wherein the scrambling code selected by the UE has a serial number defined as a remainder obtained by dividing the specified unique identifier by a total number of the plurality of scrambling codes.

3. (Original) The method as claimed in claim 1, wherein the scrambling code selected by the UE has a serial number defined as a remainder obtained by dividing the specified unique identifier by a quotient obtained by dividing a total number of the plurality of scrambling codes by a persistence level transmitted from the UTRAN.

4. (Original) The method as claimed in claim 3, wherein the persistence level is determined according to a priority of the UE.

5. (Original) The method as claimed in claim 3, wherein the persistence level is set to a lower value for a UE with a higher priority.

6. (Original) A method for selecting a random access channel (RACH), comprising the steps of:

receiving RACH system information message from a UTRAN (UMTS (Universal Mobile Telecommunication System) Terrestrial Radio Access Network), and determining a total number of RACHs available in a cell depending on the received RACH system information; and

selecting a scrambling code for one of the RACHs using the determined total number of the RACHs and a unique identifier of a user equipment (UE).

7. (Original) The method as claimed in claim 6, wherein the selected scrambling code has a serial number defined as a remainder obtained by dividing the unique identifier of the UE by the total number of the RACHs.

8. (Original) The method as claimed in claim 6, wherein the selected scrambling code has a serial number defined as a remainder obtained by dividing the unique identifier of the UE by a quotient obtained by dividing the total number of the RACHs by a persistence level transmitted from the UTRAN.

9. (Original) The method as claimed in claim 8, wherein the persistence level is determined according to a priority of the UE.

10. (Original) The method as claimed in claim 8, wherein the persistence level is set to a lower value for a UE with a higher priority.

11. (Original) A method selecting a random access channel (RACH), comprising the steps of:

determining an access service class (ASC) associated with a unique access class of a user equipment (UE) by analyzing a radio resource control (RRC) message received from a UTRAN (UMTS (Universal Mobile Telecommunication System) Terrestrial Radio Access Network);

receiving mapping information message between the ASC and PRACH from the UTRAN and analyzing ASCs and scrambling codes to be used for available RACHs associated with each of the ASCs based on the received mapping information;

mapping the analyzed scrambling codes to scrambling code groups associated with the ASCs;

selecting a scrambling code group associated with the determined ASC; and

selecting one of the scrambling codes using a total number of the scrambling codes mapped to the selected scrambling code group and a unique identifier of the UE.

12. (Original) The method as claimed in claim 11, wherein the selected scrambling code has a serial number defined as a remainder obtained by dividing the unique identifier of the UE by the total number of the scrambling codes.

13. (Original) The method as claimed in claim 11, wherein the selected scrambling code has a serial number defined as a remainder obtained by dividing the unique identifier of the UE by a quotient obtained by dividing the total number of the scrambling codes by a persistence level transmitted from the UTRAN.

14. (Original) The method as claimed in claim 13, wherein the persistence level is determined according to a priority of the UE.

15. (Original) The method as claimed in claim 13, wherein the persistence level is set to a lower value for a UE with a higher priority.

16. (Original) The method as claimed in claim 11, wherein the scrambling codes to be used for the available RACHs associated with each of the ASCs are determined by a start index and an end index of a group of available RACHS, constituting the mapping information.

17. (Currently Amended) A method for selecting a scrambling code from a plurality of scrambling codes by a UE (user equipment) in a CDMA (Code Division Multiple Access) mobile communication system including a UTRAN (UMTS (Universal Mobile Telecommunication System) Terrestrial Radio Access Network), and transmitting a plurality of

scrambling codes having serial numbers associated with RACHs (random access channel) from the UTRAN to the plurality of UEs, comprising the steps of:

determining a persistence value by substituting a persistence level provided from the UTRAN to each UE, said persistence value defined by $P_i = 2^{-(k-1)}$;

determining a value R between 0 and 1;

determining whether the persistence value is larger than or equal to the value R; and

if the persistence value is larger than or equal to the value R, selecting a scrambling code by the UE by using the value R, a unique identifier of each UE and a total number of the scrambling codes (maxPRACH), wherein the selected scrambling code is defined by:

$$\text{PRACH\#} = \left(\lfloor R \times 8 \times \text{maxPRACH} \rfloor \right) \left(\lfloor R \times 8 \rfloor \times \text{maxPRACH} \right) \% \text{maxPRACH},$$

where $\lfloor i \rfloor$ is a maximum integer that is less than or equal to i .